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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/874,091	06/04/2001	Deborah Charych	1680.002	6042

7590 11/27/2006

Chiron Corporation
Intellectual Property Law Department
Mail Stop R-3
PO Box 8097
Emeryville, CA 94662

EXAMINER	
TRAN, MY CHAU T	

ART UNIT	PAPER NUMBER
1639	

DATE MAILED: 11/27/2006

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BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Application Number: 09/874,091
Filing Date: June 04, 2001
Appellant(s): CHARYCH ET AL.

Denise Bergin
For Appellant

EXAMINER'S ANSWER

This is in response to the appeal brief filed 08/31/2006 appealing from the Office action mailed 03/22/2006.

(1) Real Party in Interest

A statement identifying by name the real party in interest is contained in the brief.

(2) Related Appeals and Interferences

The examiner is not aware of any related appeals, interferences, or judicial proceedings, which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

(3) Status of Claims

The statement of the status of claims contained in the brief is correct.

(4) Status of Amendments After Final

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

(5) Summary of Claimed Subject Matter

The summary of claimed subject matter contained in the brief is correct.

(6) Grounds of Rejection to be Reviewed on Appeal

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

(7) Claims Appendix

The copy of the appealed claims contained in the Appendix to the brief is correct.

(8) Evidence Relied Upon

5,478,527	GUSTAFSON et al.	12-1995
6,087,102	CHENCHIK et al.	6-2000
6,329,209 B1	WAGNER et al.	12-2001
5,482,867	BARRETT et al.	1-1996

(9) Grounds of Rejection

The following ground(s) of rejection are applicable to the appealed claims:

Claim Rejections - 35 USC § 103

1. Claims 1, 60-61, 63-66 and 99-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102).

Gustafson et al. disclose a biograting comprises a wafer for attachment of binding agents that comprises zone of active and inactive binding reagent (refers to the instant claimed array/product) (see e.g. Abstract; col. 2, lines 34-67; col. 5, lines 1-10; fig. 1). The binding agents include proteins (see e.g. col. 4, lines 6-32; col. 7, lines 5-15, and 23-35). The biograting comprises a wafer that is defined as an optically flat plate of insoluble solid (see e.g. col. 4, lines 62-63; col. 5, lines 1-10; fig. 1, ref. #14), a metal layer on the wafer (see e.g. col. 5, lines 1-10, and 51-60; fig. 1, ref. #12), and a transparent layer on the metal layer (see e.g. col. 5, lines 1-10, and lines 61-63; col. 11, lines 15-28; fig. 1, ref. #2). The wafer comprises silicon or glass (see e.g. col. 5, lines 36-50; col. 8, lines 25-31; col. 11, lines 15-28). The metal layer comprises metals such as aluminum (see e.g. col. 5, lines 11-16; col. 11, lines 15-28). The transparent layer

comprises materials such as silicon dioxide (see e.g. col. 5, lines 17-26; col. 11, lines 15-28). The thickness of the silicon dioxide layer is between 800 to 1200 Å (see e.g. col. 3, lines 11-12; col. 6, lines 51-55; col. 9, lines 60-65; col. 10, lines 3-6) and the silicon dioxide is treated with a reagent such as aminopropyltriethoxysilane (see e.g. col. 6, lines 16-38; col. 11, lines 15-28). The aminosilane are functionalized with functional group such as amino, and thiol group for attachment of the binding agents (see e.g. col. 7, lines 23-63). Additionally, Gustafson et al. disclose a masking technique that creates zones of active binding reagent (ref. #8 of fig. 1) and zones of inactive binding reagent that produces a diffraction grating design (ref. #10 of fig. 1) (see e.g. col. 5, lines 1-10; col. 8, lines 25-64; col. 9, lines 27-40). Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58). That is the term "diffraction grating" includes immunoassay step wherein the label analyte bind with the binding pair on the surface of the support and the label produces a light signal.

The array of Gustafson et al. differs from the presently claimed invention by failing to include a plurality of fluorescent labeled proteins.

Chenchik et al. disclose an arrays of polymeric targets stably associated with the surface of a support (see e.g. Abstract; col. 2, lines 3-11, and 51-62). The polymeric targets are bipolymeric compounds that include naturally occurring polymeric compounds or mimetics or analogues of naturally occurring polymeric compounds, and the bipolymeric compounds includes peptides, polypeptides and proteins (see e.g. col. 3, lines 13-20). The support comprises

a planar configuration and one or more modification layers (see e.g. col. 4, lines 25-67). The material of the support includes glass, plastic, or metal (see e.g. col. 4, lines 43-52). The modification layer includes layer such as metal oxide (see e.g. col. 4, lines 53-67). The polymeric targets are stably associated with the surface of a support via covalent or non-covalent association that includes attachment through a linking group (see e.g. col. 3, line 65 thru col. 4, line 14). Additionally, Chenchik et al. disclose the application of the array wherein the sample of probes are bound to the polymeric targets on the support by either hybridization of specific binding (see e.g. col. 8, lines 55-62). The probes include peptidic probes and label such as cyanine dyes, e.g. Cy3 and Cy5 (see e.g. col. 9, lines 18-65). Following binding the probe and the polymeric targets, the resulting conjugation patterns of labeled probe can be visualized or detected (see col. 10, lines 38-45). Chenchik et al. also disclose packaging the array in a kit format wherein the kit includes reagents such as labels (see e.g. col. 11, lines 25-39).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a plurality of fluorescent labeled proteins as taught by Chenchik et al. in the array of Gustafson et al. One of ordinary skill in the art would have been motivated to include a plurality of fluorescent labeled proteins in the array of Gustafson et al. for the advantage of providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43) since both Gustafson et al. and Chenchik et al. disclose an array of polymeric compounds such as proteins (Gustafson: col. 4, lines 6-32; Chenchik: col. 2, lines 3-11). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Gustafson et al. and Chenchik et al. because Chenchik et al. disclose by examples the success of

including plurality of fluorescent labeled probe that binds to the target on the surface of the support (Chenchik: col. 11, line 61 thru col. 15, lines 22).

2. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 1, 60-61, 63-66 and 99-101 above, and further in view of Wagner et al. (US Patent 6,329,209 B1).

Gustafson et al. disclose a biograting comprises a wafer for attachment of binding agents that comprises zone of active and inactive binding reagent (refers to the instant claimed array/product) (see e.g. Abstract; col. 2, lines 34-67; col. 5, lines 1-10; fig. 1). The binding agents include proteins (see e.g. col. 4, lines 6-32; col. 7, lines 5-15, and 23-35). The biograting comprises a wafer that is defined as an optically flat plate of insoluble solid (see e.g. col. 4, lines 62-63; col. 5, lines 1-10; fig. 1, ref. #14), a metal layer on the wafer (see e.g. col. 5, lines 1-10, and 51-60; fig. 1, ref. #12), and a transparent layer on the metal layer (see e.g. col. 5, lines 1-10, and lines 61-63; col. 11, lines 15-28; fig. 1, ref. #2). The wafer comprises silicon or glass (see e.g. col. 5, lines 36-50; col. 8, lines 25-31; col. 11, lines 15-28). The metal layer comprises metals such as aluminum (see e.g. col. 5, lines 11-16; col. 11, lines 15-28). The transparent layer comprises materials such as silicon dioxide (see e.g. col. 5, lines 17-26; col. 11, lines 15-28). The thickness of the silicon dioxide layer is between 800 to 1200 Å (see e.g. col. 3, lines 11-12; col. 6, lines 51-55; col. 9, lines 60-65; col. 10, lines 3-6) and the silicon dioxide is treated with a reagent such as aminopropyltriethoxysilane (see e.g. col. 6, lines 16-38; col. 11, lines 15-28). The aminosilane are functionalized with functional group such as amino, and thiol group for attachment of the binding agents (see e.g. col. 7, lines 23-63). Additionally, Gustafson et al.

disclose a masking technique that creates zones of active binding reagent (ref. #8 of fig. 1) and zones of inactive binding reagent that produces a diffraction grating design (ref. #10 of fig. 1) (see e.g. col. 5, lines 1-10; col. 8, lines 25-64; col. 9, lines 27-40). Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58). That is the term "diffraction grating" includes immunoassay step wherein the label analyte bind with the binding pair on the surface of the support and the label produces a light signal.

Chenchik et al. disclose an arrays of polymeric targets stably associated with the surface of a support (see e.g. Abstract; col. 2, lines 3-11, and 51-62). The polymeric targets are bipolymeric compounds that include naturally occurring polymeric compounds or mimetics or analogues of naturally occurring polymeric compounds, and the bipolymeric compounds includes peptides, polypeptides and proteins (see e.g. col. 3, lines 13-20). The support comprises a planar configuration and one or more modification layers (see e.g. col. 4, lines 25-67). The material of the support includes glass, plastic, or metal (see e.g. col. 4, lines 43-52). The modification layer includes layer such as metal oxide (see e.g. col. 4, lines 53-67). The polymeric targets are stably associated with the surface of a support via covalent or non-covalent association that includes attachment through a linking group (see e.g. col. 3, line 65 thru col. 4, line 14). Additionally, Chenchik et al. disclose the application of the array wherein the sample of probes are bound to the polymeric targets on the support by either hybridization of specific binding (see e.g. col. 8, lines 55-62). The probes include peptidic probes and label such as

cyanine dyes, e.g. Cy3 and Cy5 (see e.g. col. 9, lines 18-65). Following binding the probe and the polymeric targets, the resulting conjugation patterns of labeled probe can be visualized or detected (see col. 10, lines 38-45). Chenchik et al. also disclose packaging the array in a kit format wherein the kit includes reagents such as labels (see e.g. col. 11, lines 25-39).

Thus it is obvious to combine the array of Gustafson et al. and Chenchik et al. to produce the presently claimed array. Because one of ordinary skill in the art would have been motivated to include a plurality of fluorescent labeled proteins in the array of Gustafson et al. for the advantage of providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43). However, the array combination of Gustafson et al. and Chenchik et al. differs from the presently claimed invention by failing to include a maleleimide functional group for binding with the protein binding agents.

Wagner et al. disclose an array of proteins comprising a plurality of patches in discrete, known regions on a substrate, where a protein with different, known sequence is immobilized on each patch (see e.g. Abstract; col. 3, lines 26-29; col. 4, lines 53-54; col. 6, line 61 to col. 7, line 2; col. 7, lines 16-17; col. 9, lines 58-65). The plurality of patches comprises different proteins (see e.g. col. 3, lines 26-29; col. 10, line 60 to col. 11, line 27). Additionally, Wagner et al. define the term protein to include protein analogue, wherein "*The term protein may also apply to amino acid polymers in which one or more amino acid residues is an artificial chemical analogue of a corresponding naturally occurring amino acid*" (see e.g. col. 5, lines 26-29). The array comprises of a monolayer on the surface of the substrate and the proteins are immobilized on the monolayer (see e.g. col. 8, lines 9-17; col. 15, lines 33-64). They are three major classes

of monolayer formation are preferably used to expose high densities of bioreactive functionalities on the array, which are alkylsiloxane monolayer, alkyl-thiol/dialkyldisulfide monolayer, and alkyl monolayer (see e.g. col. 8, lines 18-41; col. 17, lines 52 to col. 19, line 50). The functional group on the monolayer for binding with the protein includes maleleimide and N-hydroxysuccinimide (see e.g. col. 11, lines 39-53; col. 19, line 36-50). Wagner et al. also disclose that the substrate comprise organic thin film such as polyethylene glycol (chemical blocking agent/protein blocking agent) to reduce the non-specific binding of molecules to the surface (see e.g. col. 8, lines 12-15, and 35-38). Wagner et al. further disclose a system comprising an array and binding assay reagents (see e.g. col. 32, lines 49-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a maleleimide functional group for binding with the protein binding agents as taught by Wagner et al. in the array combination of Gustafson et al. and Chenchik et al. One of ordinary skill in the art would have been motivated to include a maleleimide functional group for binding with the protein binding agents in the array combination of Gustafson et al. and Chenchik et al. for the advantage of providing the ability to assay in parallel a multitude of proteins, and to increase the stringency of the bound capture agent by preventing non-specific binding of protein to the surface of the support (Wagner: col. 2, lines 51-54; and col. 8, lines 19-23) since Gustafson et al., Chenchik et al., and Wagner et al. all disclose an array of polymeric compounds such as proteins (Gustafson: col. 4, lines 6-32; Chenchik: col. 2, lines 3-11; Wagner: col. 3, lines 26-29). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Gustafson et al., Chenchik et al., and Wagner et al. because Wagner et al. disclose by examples the

immobilization of a plurality of different proteins on a solid substrate (see e.g. col. 40, lines 31 to col. 43, line 20).

3. Claims 67-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 1, 60-61, 63-66 and 99-101 above, and further in view of Barrett et al. (US Patent 5,482,867).

Gustafson et al. disclose a biograting comprises a wafer for attachment of binding agents that comprises zone of active and inactive binding reagent (refers to the instant claimed array/product) (see e.g. Abstract; col. 2, lines 34-67; col. 5, lines 1-10; fig. 1). The binding agents include proteins (see e.g. col. 4, lines 6-32; col. 7, lines 5-15, and 23-35). The biograting comprises a wafer that is defined as an optically flat plate of insoluble solid (see e.g. col. 4, lines 62-63; col. 5, lines 1-10; fig. 1, ref. #14), a metal layer on the wafer (see e.g. col. 5, lines 1-10, and 51-60; fig. 1, ref. #12), and a transparent layer on the metal layer (see e.g. col. 5, lines 1-10, and lines 61-63; col. 11, lines 15-28; fig. 1, ref. #2). The wafer comprises silicon or glass (see e.g. col. 5, lines 36-50; col. 8, lines 25-31; col. 11, lines 15-28). The metal layer comprises metals such as aluminum (see e.g. col. 5, lines 11-16; col. 11, lines 15-28). The transparent layer comprises materials such as silicon dioxide (see e.g. col. 5, lines 17-26; col. 11, lines 15-28). The thickness of the silicon dioxide layer is between 800 to 1200 Å (see e.g. col. 3, lines 11-12; col. 6, lines 51-55; col. 9, lines 60-65; col. 10, lines 3-6) and the silicon dioxide is treated with a reagent such as aminopropyltriethoxysilane (see e.g. col. 6, lines 16-38; col. 11, lines 15-28). The aminosilane are functionalized with functional group such as amino, and thiol group for attachment of the binding agents (see e.g. col. 7, lines 23-63). Additionally, Gustafson et al.

disclose a masking technique that creates zones of active binding reagent (ref. #8 of fig. 1) and zones of inactive binding reagent that produces a diffraction grating design (ref. #10 of fig. 1) (see e.g. col. 5, lines 1-10; col. 8, lines 25-64; col. 9, lines 27-40). Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58). That is the term "diffraction grating" includes immunoassay step wherein the label analyte bind with the binding pair on the surface of the support and the label produces a light signal.

Chenchik et al. disclose an arrays of polymeric targets stably associated with the surface of a support (see e.g. Abstract; col. 2, lines 3-11, and 51-62). The polymeric targets are bipolymeric compounds that include naturally occurring polymeric compounds or mimetics or analogues of naturally occurring polymeric compounds, and the bipolymeric compounds includes peptides, polypeptides and proteins (see e.g. col. 3, lines 13-20). The support comprises a planar configuration and one or more modification layers (see e.g. col. 4, lines 25-67). The material of the support includes glass, plastic, or metal (see e.g. col. 4, lines 43-52). The modification layer includes layer such as metal oxide (see e.g. col. 4, lines 53-67). The polymeric targets are stably associated with the surface of a support via covalent or non-covalent association that includes attachment through a linking group (see e.g. col. 3, line 65 thru col. 4, line 14). Additionally, Chenchik et al. disclose the application of the array wherein the sample of probes are bound to the polymeric targets on the support by either hybridization of specific binding (see e.g. col. 8, lines 55-62). The probes include peptidic probes and label such as

cyanine dyes, e.g. Cy3 and Cy5 (see e.g. col. 9, lines 18-65). Following binding the probe and the polymeric targets, the resulting conjugation patterns of labeled probe can be visualized or detected (see col. 10, lines 38-45). Chenchik et al. also disclose packaging the array in a kit format wherein the kit includes reagents such as labels (see e.g. col. 11, lines 25-39).

Thus it is obvious to combine the array of Gustafson et al. and Chenchik et al. to produce the presently claimed array. Because one of ordinary skill in the art would have been motivated to include a plurality of fluorescent labeled proteins in the array of Gustafson et al. for the advantage of providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43). However, the array combination of Gustafson et al. and Chenchik et al. differs from the presently claimed invention by failing to include biotin and avidin as the anchoring segment.

Barrett et al. teaches an array of immobilized ligands on predefined regions of a surface of a solid support (col. 2, lines 36-41). The method involves attaching to the surface a caged binding member (anchor). The ligand includes peptides (col. 4, lines 34-60). The caged binding member is a biotin analog (col. 5, lines 45-56). Avidin can be immobilized onto the surface of the solid support and bind to biotin (col. 5, lines 57-65). One type of biotin analog is a biotin with N-succinimidyl and a linking group of 6-aminocaproic (NHS-lc-lc-biotin) (col. 14, lines 66-67 to col. 15, lines 1-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the anchoring segment includes biotin and avidin as taught by Barrett et al. in the array combination of Gustafson et al. and Chenchik et al. One of ordinary skill in the art would have been motivated to include the anchoring segment includes biotin and

avidin in the array combination of Gustafson et al. and Chenchik et al. for the advantage of providing an efficiently and stably attaching a broad range ligands on predefined regions of a solid support (Barrett: col. 2, lines 26-32) since Gustafson et al., Chenchik et al., and Barrett et al. all disclose an array of polymeric compounds such as proteins (Gustafson: col. 4, lines 6-32; Chenchik: col. 2, lines 3-11; Barrett: col. 2, lines 36-41). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Gustafson et al., Chenchik et al., and Barrett et al. because Barrett et al. disclose by examples the success of attaching biotin onto the support (Barrett: col. 28, line 5 thru col. 32, line 13).

4. Claims 73, 79-80, 82-85, 97, and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102).

Gustafson et al. disclose a biograting comprises a wafer for attachment of binding agents that comprises zone of active and inactive binding reagent (refers to the instant claimed array/product) (see e.g. Abstract; col. 2, lines 34-67; col. 5, lines 1-10; fig. 1). The binding agents include proteins (see e.g. col. 4, lines 6-32; col. 7, lines 5-15, and 23-35). The biograting comprises a wafer that is defined as an optically flat plate of insoluble solid (see e.g. col. 4, lines 62-63; col. 5, lines 1-10; fig. 1, ref. #14), a metal layer on the wafer (see e.g. col. 5, lines 1-10, and 51-60; fig. 1, ref. #12), and a transparent layer on the metal layer (see e.g. col. 5, lines 1-10, and lines 61-63; col. 11, lines 15-28; fig. 1, ref. #2). The wafer comprises silicon or glass (see e.g. col. 5, lines 36-50; col. 8, lines 25-31; col. 11, lines 15-28). The metal layer comprises metals such as aluminum (see e.g. col. 5, lines 11-16; col. 11, lines 15-28). The transparent layer

comprises materials such as silicon dioxide (see e.g. col. 5, lines 17-26; col. 11, lines 15-28). The thickness of the silicon dioxide layer is between 800 to 1200 Å (see e.g. col. 3, lines 11-12; col. 6, lines 51-55; col. 9, lines 60-65; col. 10, lines 3-6) and the silicon dioxide is treated with a reagent such as aminopropyltriethoxysilane (see e.g. col. 6, lines 16-38; col. 11, lines 15-28). The aminosilane are functionalized with functional group such as amino, and thiol group for attachment of the binding agents (see e.g. col. 7, lines 23-63). Additionally, Gustafson et al. disclose a masking technique that creates zones of active binding reagent (ref. #8 of fig. 1) and zones of inactive binding reagent that produces a diffraction grating design (ref. #10 of fig. 1) (see e.g. col. 5, lines 1-10; col. 8, lines 25-64; col. 9, lines 27-40). Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58). That is the term "diffraction grating" includes immunoassay step wherein the label analyte bind with the binding pair on the surface of the support and the label produces a light signal.

The array of Gustafson et al. differs from the presently claimed invention by failing to include packaging the array into a kit format that include a label reagent.

Chenchik et al. disclose an arrays of polymeric targets stably associated with the surface of a support (see e.g. Abstract; col. 2, lines 3-11, and 51-62). The polymeric targets are bipolymeric compounds that include naturally occurring polymeric compounds or mimetics or analogues of naturally occurring polymeric compounds, and the bipolymeric compounds includes peptides, polypeptides and proteins (see e.g. col. 3, lines 13-20). The support comprises

a planar configuration and one or more modification layers (see e.g. col. 4, lines 25-67). The material of the support includes glass, plastic, or metal (see e.g. col. 4, lines 43-52). The modification layer includes layer such as metal oxide (see e.g. col. 4, lines 53-67). The polymeric targets are stably associated with the surface of a support via covalent or non-covalent association that includes attachment through a linking group (see e.g. col. 3, line 65 thru col. 4, line 14). Additionally, Chenchik et al. disclose the application of the array wherein the sample of probes are bound to the polymeric targets on the support by either hybridization of specific binding (see e.g. col. 8, lines 55-62). The probes include peptidic probes and label such as cyanine dyes, e.g. Cy3 and Cy5 (see e.g. col. 9, lines 18-65). Following binding the probe and the polymeric targets, the resulting conjugation patterns of labeled probe can be visualized or detected (see col. 10, lines 38-45). Chenchik et al. also disclose packaging the array in a kit format wherein the kit includes reagents such as labels (see e.g. col. 11, lines 25-39).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include packaging the array into a kit format that include a label reagent as taught by Chenchik et al. in the array of Gustafson et al. One of ordinary skill in the art would have been motivated to include packaging the array into a kit format that include a label reagent in the array of Gustafson et al. for the advantage of providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43) since both Gustafson et al. and Chenchik et al. disclose an array of polymeric compounds such as proteins (Gustafson: col. 4, lines 6-32; Chenchik: col. 2, lines 3-11). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Gustafson et al. and Chenchik et al.

because Chenchik et al. disclose by examples the success of including plurality of fluorescent labeled probe that binds to the target on the surface of the support (Chenchik: col. 11, line 61 thru col. 15, lines 22).

5. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 73, 79-80, 82-85, 97, and 98 above, and further in view of Wagner et al. (US Patent 6,329,209 B1).

Gustafson et al. disclose a biograting comprises a wafer for attachment of binding agents that comprises zone of active and inactive binding reagent (refers to the instant claimed array/product) (see e.g. Abstract; col. 2, lines 34-67; col. 5, lines 1-10; fig. 1). The binding agents include proteins (see e.g. col. 4, lines 6-32; col. 7, lines 5-15, and 23-35). The biograting comprises a wafer that is defined as an optically flat plate of insoluble solid (see e.g. col. 4, lines 62-63; col. 5, lines 1-10; fig. 1, ref. #14), a metal layer on the wafer (see e.g. col. 5, lines 1-10, and 51-60; fig. 1, ref. #12), and a transparent layer on the metal layer (see e.g. col. 5, lines 1-10, and lines 61-63; col. 11, lines 15-28; fig. 1, ref. #2). The wafer comprises silicon or glass (see e.g. col. 5, lines 36-50; col. 8, lines 25-31; col. 11, lines 15-28). The metal layer comprises metals such as aluminum (see e.g. col. 5, lines 11-16; col. 11, lines 15-28). The transparent layer comprises materials such as silicon dioxide (see e.g. col. 5, lines 17-26; col. 11, lines 15-28). The thickness of the silicon dioxide layer is between 800 to 1200 Å (see e.g. col. 3, lines 11-12; col. 6, lines 51-55; col. 9, lines 60-65; col. 10, lines 3-6) and the silicon dioxide is treated with a reagent such as aminopropyltriethoxysilane (see e.g. col. 6, lines 16-38; col. 11, lines 15-28). The aminosilane are functionalized with functional group such as amino, and thiol group for

attachment of the binding agents (see e.g. col. 7, lines 23-63). Additionally, Gustafson et al. disclose a masking technique that creates zones of active binding reagent (ref. #8 of fig. 1) and zones of inactive binding reagent that produces a diffraction grating design (ref. #10 of fig. 1) (see e.g. col. 5, lines 1-10; col. 8, lines 25-64; col. 9, lines 27-40). Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58). That is the term "diffraction grating" includes immunoassay step wherein the label analyte bind with the binding pair on the surface of the support and the label produces a light signal.

Chenchik et al. disclose an arrays of polymeric targets stably associated with the surface of a support (see e.g. Abstract; col. 2, lines 3-11, and 51-62). The polymeric targets are bipolymeric compounds that include naturally occurring polymeric compounds or mimetics or analogues of naturally occurring polymeric compounds, and the bipolymeric compounds includes peptides, polypeptides and proteins (see e.g. col. 3, lines 13-20). The support comprises a planar configuration and one or more modification layers (see e.g. col. 4, lines 25-67). The material of the support includes glass, plastic, or metal (see e.g. col. 4, lines 43-52). The modification layer includes layer such as metal oxide (see e.g. col. 4, lines 53-67). The polymeric targets are stably associated with the surface of a support via covalent or non-covalent association that includes attachment through a linking group (see e.g. col. 3, line 65 thru col. 4, line 14). Additionally, Chenchik et al. disclose the application of the array wherein the sample of probes are bound to the polymeric targets on the support by either hybridization of specific

binding (see e.g. col. 8, lines 55-62). The probes include peptidic probes and label such as cyanine dyes, e.g. Cy3 and Cy5 (see e.g. col. 9, lines 18-65). Following binding the probe and the polymeric targets, the resulting conjugation patterns of labeled probe can be visualized or detected (see col. 10, lines 38-45). Chenchik et al. also disclose packaging the array in a kit format wherein the kit includes reagents such as labels (see e.g. col. 11, lines 25-39).

Thus it is obvious to combine the array of Gustafson et al. and Chenchik et al. to produce the presently claimed array. Because one of ordinary skill in the art would have been motivated to include a plurality of fluorescent labeled proteins in the array of Gustafson et al. for the advantage of providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43). However, the array combination of Gustafson et al. and Chenchik et al. differs from the presently claimed invention by failing to include a maleleimide functional group for binding with the protein binding agents.

Wagner et al. disclose an array of proteins comprising a plurality of patches in discrete, known regions on a substrate, where a protein with different, known sequence is immobilized on each patch (see e.g. Abstract; col. 3, lines 26-29; col. 4, lines 53-54; col. 6, line 61 to col. 7, line 2; col. 7, lines 16-17; col. 9, lines 58-65). The plurality of patches comprises different proteins (see e.g. col. 3, lines 26-29; col. 10, line 60 to col. 11, line 27). Additionally, Wagner et al. define the term protein to include protein analogue, wherein "*The term protein may also apply to amino acid polymers in which one or more amino acid residues is an artificial chemical analogue of a corresponding naturally occurring amino acid*" (see e.g. col. 5, lines 26-29). The array comprises of a monolayer on the surface of the substrate and the proteins are immobilized

on the monolayer (see e.g. col. 8, lines 9-17; col. 15, lines 33-64). They are three major classes of monolayer formation are preferably used to expose high densities of bioreactive functionalities on the array, which are alkylsiloxane monolayer, alkyl-thiol/dialkyldisulfide monolayer, and alkyl monolayer (see e.g. col. 8, lines 18-41; col. 17, lines 52 to col. 19, line 50). The functional group on the monolayer for binding with the protein includes maleleimide and N-hydroxysuccinimide (see e.g. col. 11, lines 39-53; col. 19, line 36-50). Wagner et al. also disclose that the substrate comprise organic thin film such as polyethylene glycol (chemical blocking agent/protein blocking agent) to reduce the non-specific binding of molecules to the surface (see e.g. col. 8, lines 12-15, and 35-38). Wagner et al. further disclose a system comprising an array and binding assay reagents (see e.g. col. 32, lines 49-57).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include a maleleimide functional group for binding with the protein binding agents as taught by Wagner et al. in the array combination of Gustafson et al. and Chenchik et al. One of ordinary skill in the art would have been motivated to include a maleleimide functional group for binding with the protein binding agents in the array combination of Gustafson et al. and Chenchik et al. for the advantage of providing the ability to assay in parallel a multitude of proteins, and to increase the stringency of the bound capture agent by preventing non-specific binding of protein to the surface of the support (Wagner: col. 2, lines 51-54; and col. 8, lines 19-23) since Gustafson et al., Chenchik et al., and Wagner et al. all disclose an array of polymeric compounds such as proteins (Gustafson: col. 4, lines 6-32; Chenchik: col. 2, lines 3-11; Wagner: col. 3, lines 26-29). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Gustafson et al.,

Chenchik et al., and Wagner et al. because Wagner et al. disclose by examples the immobilization of a plurality of different proteins on a solid substrate (see e.g. col. 40, lines 31 to col. 43, line 20).

6. Claims 86-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 73, 79-80, 82-85, 97, and 98 above, and further in view of Barrett et al. (US Patent 5,482,867).

Gustafson et al. disclose a biograting comprises a wafer for attachment of binding agents that comprises zone of active and inactive binding reagent (refers to the instant claimed array/product) (see e.g. Abstract; col. 2, lines 34-67; col. 5, lines 1-10; fig. 1). The binding agents include proteins (see e.g. col. 4, lines 6-32; col. 7, lines 5-15, and 23-35). The biograting comprises a wafer that is defined as an optically flat plate of insoluble solid (see e.g. col. 4, lines 62-63; col. 5, lines 1-10; fig. 1, ref. #14), a metal layer on the wafer (see e.g. col. 5, lines 1-10, and 51-60; fig. 1, ref. #12), and a transparent layer on the metal layer (see e.g. col. 5, lines 1-10, and lines 61-63; col. 11, lines 15-28; fig. 1, ref. #2). The wafer comprises silicon or glass (see e.g. col. 5, lines 36-50; col. 8, lines 25-31; col. 11, lines 15-28). The metal layer comprises metals such as aluminum (see e.g. col. 5, lines 11-16; col. 11, lines 15-28). The transparent layer comprises materials such as silicon dioxide (see e.g. col. 5, lines 17-26; col. 11, lines 15-28). The thickness of the silicon dioxide layer is between 800 to 1200 Å (see e.g. col. 3, lines 11-12; col. 6, lines 51-55; col. 9, lines 60-65; col. 10, lines 3-6) and the silicon dioxide is treated with a reagent such as aminopropyltriethoxysilane (see e.g. col. 6, lines 16-38; col. 11, lines 15-28). The aminosilane are functionalized with functional group such as amino, and thiol group for

attachment of the binding agents (see e.g. col. 7, lines 23-63). Additionally, Gustafson et al. disclose a masking technique that creates zones of active binding reagent (ref. #8 of fig. 1) and zones of inactive binding reagent that produces a diffraction grating design (ref. #10 of fig. 1) (see e.g. col. 5, lines 1-10; col: 8, lines 25-64; col. 9, lines 27-40). Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58). That is the term "diffraction grating" includes immunoassay step wherein the label analyte bind with the binding pair on the surface of the support and the label produces a light signal.

Chenchik et al. disclose an arrays of polymeric targets stably associated with the surface of a support (see e.g. Abstract; col. 2, lines 3-11, and 51-62). The polymeric targets are bipolymeric compounds that include naturally occurring polymeric compounds or mimetics or analogues of naturally occurring polymeric compounds, and the bipolymeric compounds includes peptides, polypeptides and proteins (see e.g. col. 3, lines 13-20). The support comprises a planar configuration and one or more modification layers (see e.g. col. 4, lines 25-67). The material of the support includes glass, plastic, or metal (see e.g. col. 4, lines 43-52). The modification layer includes layer such as metal oxide (see e.g. col. 4, lines 53-67). The polymeric targets are stably associated with the surface of a support via covalent or non-covalent association that includes attachment through a linking group (see e.g. col. 3, line 65 thru col. 4, line 14). Additionally, Chenchik et al. disclose the application of the array wherein the sample of probes are bound to the polymeric targets on the support by either hybridization of specific

binding (see e.g. col. 8, lines 55-62). The probes include peptidic probes and label such as cyanine dyes, e.g. Cy3 and Cy5 (see e.g. col. 9, lines 18-65). Following binding the probe and the polymeric targets, the resulting conjugation patterns of labeled probe can be visualized or detected (see col. 10, lines 38-45). Chenchik et al. also disclose packaging the array in a kit format wherein the kit includes reagents such as labels (see e.g. col. 11, lines 25-39).

Thus it is obvious to combine the array of Gustafson et al. and Chenchik et al. to produce the presently claimed array. Because one of ordinary skill in the art would have been motivated to include a plurality of fluorescent labeled proteins in the array of Gustafson et al. for the advantage of providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43). However, the array combination of Gustafson et al. and Chenchik et al. differs from the presently claimed invention by failing to include biotin and avidin as the anchoring segment.

Barrett et al. teaches an array of immobilized ligands on predefined regions of a surface of a solid support (col. 2, lines 36-41). The method involves attaching to the surface a caged binding member (anchor). The ligand includes peptides (col. 4, lines 34-60). The caged binding member is a biotin analog (col. 5, lines 45-56). Avidin can be immobilized onto the surface of the solid support and bind to biotin (col. 5, lines 57-65). One type of biotin analog is a biotin with N-succinimidyl and a linking group of 6-aminocaproic (NHS-lc-lc-biotin) (col. 14, lines 66-67 to col. 15, lines 1-30).

It would have been obvious to a person of ordinary skill in the art at the time the invention was made to include the anchoring segment includes biotin and avidin as taught by Barrett et al. in the array combination of Gustafson et al. and Chenchik et al. One of ordinary

skill in the art would have been motivated to include the anchoring segment includes biotin and avidin in the array combination of Gustafson et al. and Chenchik et al. for the advantage of providing an efficiently and stably attaching a broad range ligands on predefined regions of a solid support (Barrett: col. 2, lines 26-32) since Gustafson et al., Chenchik et al., and Barrett et al. all disclose an array of polymeric compounds such as proteins (Gustafson: col. 4, lines 6-32; Chenchik: col. 2, lines 3-11; Barrett: col. 2, lines 36-41). Furthermore, one of ordinary skill in the art would have reasonably expectation of success in the combination of Gustafson et al., Chenchik et al., and Barrett et al. because Barrett et al. disclose by examples the success of attaching biotin onto the support (Barrett: col. 28, line 5 thru col. 32, line 13).

(10) Response to Argument

7. Claims 1, 60-61, 63-66 and 99-101 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102).

DISCUSSION

8. Applicant arguments are directed toward claims 1, 99, 100, and 101.

[1] Appellant contends that the combine teachings of Gustafson et al. and Chenchik et al. do not render claim 1 *prima facie* obvious because **(A)** '*there is no teaching or suggestion of how to modify Gustafson in the manner the Examiner suggests*'; **(B)** '*Because the Examiner's proposed modification would render Gustafson unsuitable for its intended purpose, a proper suggestion or motivation to combine the references has not been asserted*'; and **(C)** '*At least*

because Gustafson does not relate to labeled assays, one of skill in the art would not have been motivated to combine the references'.

[2] Appellant alleges that the reference Gustafson et al. does not teach or suggest the limitation of claim 99 because '*Gustafson is not relevant to labeled proteins, or fluorescent signal amplification*'. Thus, claim 99 is clearly distinguishable from '*Gustafson alone or in combination with Chenchik*'.

[3] Appellant argues that the combine teachings of Gustafson et al. and Chenchik et al. do not render claims 100 and 101 *prima facie* obvious because '*the substrate of Gustafson is particular to its label-free assay*'.

This is not found persuasive for the following reasons:

[1] The examiner respectfully disagrees. It is the examiner's position that the combine teachings of Gustafson et al. and Chenchik et al. do render claim 1 *prima facie* obvious.

(A) Appellant supports the assertion that '*there is no teaching or suggestion of how to modify Gustafson in the manner the Examiner suggests*' because the product of both Gustafson et al. and Chenchik et al. are very different wherein **1)** the structural feature, i.e. the arrangement of the targets, of the product of both Gustafson et al. and Chenchik et al. are different; **2)** Gustafson et al. do not suggest using label assay; and **3)** Chenchik et al. does not '*teach or suggest that a diffraction grating may be formed by any arrangement of its patches or that diffraction patterns may be used to detect the presence of proteins in the sample solution*'.

1) The examiner respectfully disagrees. It is the examiner's position that appellant has misinterprets figures 1 and 4 of Gustafson et al. in that the ***only*** arrangement of the targets are parallel lines (see pictures depicted on page 10 of appellant arguments). As

clearly stated in Gustafson et al., figures 1 and 4 are illustrations of the ***cross-sectional view*** of an embodiment of the invention (see col. 3, lines 18-19 and 27-30). These illustrations provide two possible interpretations of the arrangement of the targets that are parallel lines as interpreted by appellant ***and*** linear zones as depicted by figure 1 of Chenchik et al. In addition, this contention is support by Gustafson et al. disclosure of making the diffraction grating pattern of alternating zones of active and deactivated binding reagent using photographic methods wherein "*the dark zones, **preferably linear zones or lines**, of the mask correspond to active binding reagent areas desired on the ultimate surface*" (see col. 8, lines 29-31), i.e. the pattern that can be produce encompasses both parallel lines and linear zones. Consequently, the structural feature of the product of both Gustafson et al. and Chenchik et al. are not different.

2) The examiner respectfully disagrees. Although Gustafson et al. preferred embodiment is for label-free assay, it is the examiner's position that Gustafson et al. do suggest using label assay. Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58), and the term "light disturbing" "*to include all ways in which light is affected including light absorbing, reflecting, scattering, refracting and phase changing*" (see e.g. col. 4, lines 37-40). From these definitions, the binding of the binding reagent and the analyte would produce a detectable pattern

on the surface of the support wherein the analyte would include a label analyte. Accordingly, Gustafson et al. do suggest using label assay.

3) The examiner respectfully disagrees. It is the examiner's position that Chenchik et al. does suggest '*that a diffraction grating may be formed by any arrangement of its patches or that diffraction patterns may be used to detect the presence of proteins in the sample solution*'. First, figure 1 of Chenchik et al. illustrate a pattern arrangement of the target on the surface of a solid support, i.e. '*a diffraction grating may be formed by any arrangement of its patches*', (see fig. 1; col. 5, lines 64-67). Second, Chenchik et al. disclose that after the binding of the probe and target the hybridization patterns of the labeled probe can be visualized or detected, i.e. '*diffraction patterns may be used to detect the presence of proteins in the sample solution*', (see col. 10, lines 38-45). Therefore, Chenchik et al. does suggest '*that a diffraction grating may be formed by any arrangement of its patches or that diffraction patterns may be used to detect the presence of proteins in the sample solution*'.

As a result, both the teachings of Gustafson et al. and Chenchik et al. are analogous art, and the motivation to modify of diffraction gratings of Gustafson et al., i.e. to include "*a plurality of protein-binding agents*" as claimed in instant claim 1, is found in the teaching of Chenchik et al., i.e. providing a high throughput format that provides two types of informations, which are the types of genes expressed and the size of the expressed products (Chenchik: col. 1, lines 38-43).

(B) The examiner respectfully disagrees. It is the examiner's position that the modification would not render '*Gustafson unsuitable for its intended purpose*' because the intended purpose

of Gustafson et al. is to provide a support wherein the binding of the binding reagent and the analyte would produce a detectable pattern on the surface of the support as discussed in **(A)** above. This is analogous to the teaching of Chenchik et al. wherein the binding of the probe and the target would produce a detectable pattern on the surface of the support as discussed in **(A)** above. Moreover, Chenchik et al. disclose modifying the surface of the support on which the pattern targets is presented with a layer of compounds such as metal oxides that serve to modulate the properties of the surface in a desirable manner (Chenchik: col. 4, lines 56-67). Hence, Chenchik et al. would look toward the teaching of Gustafson et al. since Gustafson et al. teach modifying the surface of the support with a layer of silicon dioxide (metal oxide) to modulate the properties of the surface in a desirable manner (Gustafson: col. 5, lines 61-63). As a result, a proper motivation to combine has been asserted.

(C) The examiner respectfully disagrees. Although Gustafson et al. preferred embodiment is for label-free assay, it is the examiner's position that Gustafson et al. do suggest using label assay as discussed in **(A)** above. Moreover, the declaration under 37 CFR 1.132 by Dr. Deborah Charych filed 04/06/2005 is insufficient to overcome the cited prior art of Gustafson et al. because the unexpected result wherein the silicon dioxide thickness is about 200 to 900 Å is not unexpected for Gustafson et al. teach that the preferred silicon dioxide thickness is 250 to 1000 Å (Gustafson: col. 6, lines 53-55). Thus, one of skill in the art would be motivated to combine the references of Gustafson et al. and Chenchik et al.

Therefore, the combine teachings of Gustafson et al. and Chenchik et al. do render claim 1 *prima facie* obvious.

[2] The examiner respectfully disagrees. It is the examiner's position that although the reference Gustafson et al. does not teach or suggest the limitation of claim 99 this limitation are taught in the reference of Chenchik et al. In addition, Gustafson et al. do suggest using label assay as discussed in **[1](A)** above. Accordingly, the combine teachings of Gustafson et al. and Chenchik et al. do render claim 99 *prima facie* obvious.

[3] The examiner respectfully disagrees. It is the examiner's position that Gustafson et al. do suggest using label assay as discussed in **[1](A)** above. Consequently, the combine teachings of Gustafson et al. and Chenchik et al. do render claims 100 and 101 *prima facie* obvious.

Therefore, the combine teachings of Gustafson et al. and Chenchik et al. do render the instant claims, i.e. claims 1, 99, 100, and 101, *prima facie* obvious, and the rejection should be maintained.

9. Claims 73, 79-80, 82-85, 97, and 98 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102).

DISCUSSION

10. Applicant arguments are directed toward claims 73, 97, and 98.

[1] Appellant contends that that the combine teachings of Gustafson et al. and Chenchik et al. do not render claim 73 *prima facie* obvious because **(A)** Gustafson et al. do not suggest using label assay, and **(B)** Gustafson et al. do not teach the limitation of claim 73 wherein '*claim 73 recites that the silicon dioxide is "configured to amplify a fluorescent signal from a labeled*

protein bound to the array" and includes reagents for conducting a differential protein-binding assay'.

[2] Appellant alleges that the reference Gustafson et al. does not teach or suggest the limitation of claim 99 because '*Gustafson is not relevant to labeled proteins, or fluorescent signal amplification*'. Thus, claim 97 is clearly distinguishable from '*Gustafson alone or in combination with Chenchik*'.

[3] Appellant argues that the combine teachings of Gustafson et al. and Chenchik et al. do not render claim 98 *prima facie* obvious because '*the substrate of Gustafson is particular to its label-free assay*'.

This is not found persuasive for the following reasons:

[1] The examiner respectfully disagrees. It is the examiner's position that the combine teachings of Gustafson et al. and Chenchik et al. do render claim 73 *prima facie* obvious.

(A) The examiner respectfully disagrees. Although Gustafson et al. preferred embodiment is for label-free assay, it is the examiner's position that Gustafson et al. do suggest using label assay. Gustafson et al. define the term "diffraction grating" "*to include gratings which are formed in one or more immunological steps. For the method of this invention, the diffraction grating is formed directly by the conjugation of the non-light disturbing binding reagent on the insoluble surface with a light disturbing analyte*" (see e.g. col. 4, lines 41-58), and the term "light disturbing" "*to include all ways in which light is affected including light absorbing, reflecting, scattering, refracting and phase changing*" (see e.g. col. 4, lines 37-40). From these definitions, the binding of the binding reagent and the analyte would produce a detectable pattern on the surface of the support wherein the analyte would include a label analyte. Accordingly,

Gustafson et al. do suggest using label assay. Moreover, the declaration under 37 CFR 1.132 by Dr. Deborah Charych filed 04/06/2005 is insufficient to overcome the cited prior art of Gustafson et al. because the unexpected result wherein the silicon dioxide thickness is about 200 to 900 Å is not unexpected for Gustafson et al. teach that the preferred silicon dioxide thickness is 250 to 1000 Å (Gustafson: col. 6, lines 53-55). Furthermore, Chenchik et al. disclose modifying the surface of the support on which the pattern targets is presented with a layer of compounds such as metal oxides that serve to modulate the properties of the surface in a desirable manner (Chenchik: col. 4, lines 56-67). Hence, Chenchik et al. would look toward the teaching of Gustafson et al. since Gustafson et al. teach modifying the surface of the support with a layer of silicon dioxide (metal oxide) to modulate the properties of the surface in a desirable manner (Gustafson: col. 5, lines 61-63). As a result, both the teachings of Gustafson et al. and Chenchik et al. are analogous art and a proper motivation to combine has been asserted.

(B) The examiner respectfully disagrees. First, the limitation that '*configured to amplify a fluorescent signal from a labeled protein bound to the array*' is that claimed in the instant claim 73. This limitation was cancelled by the amendment filed 04/06/2005. Second, although Gustafson et al. do not teach or suggest the limitation of including '*reagents for conducting a differential protein-binding assay*' this limitation is taught in the reference of Chenchik et al.

Therefore, the combine teachings of Gustafson et al. and Chenchik et al. do render claim 73 *prima facie* obvious.

[2] The examiner respectfully disagrees. It is the examiner's position that although the reference Gustafson et al. does not teach or suggest the limitation of claim 97 this limitation are taught in the reference of Chenchik et al. In addition, Gustafson et al. do suggest using label

assay as discussed in **[1](A)** above. Accordingly, the combine teachings of Gustafson et al. and Chenchik et al. do render claim 97 *prima facie* obvious.

[3] The examiner respectfully disagrees. It is the examiner's position that Gustafson et al. do suggest using label assay as discussed in **[1](A)** above. Consequently, the combine teachings of Gustafson et al. and Chenchik et al. do render claim 98 *prima facie* obvious.

Therefore, the combine teachings of Gustafson et al. and Chenchik et al. do render the instant claims 73, 97, and 98 *prima facie* obvious, and the rejection is maintained.

11. Claim 62 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 1, 60-61, 63-66 and 99-101 above, and further in view of Wagner et al. (US Patent 6,329,209 B1).

12. Claim 81 is rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 73, 79-80, 82-85, 97, and 98 above, and further in view of Wagner et al. (US Patent 6,329,209 B1).

DISCUSSION

13. Applicant arguments are directed toward claims 62 and 81.

[1] Appellant contends that the combine teachings of Gustafson et al., Chenchik et al., and Wagner et al. do not render claims 62 and 81 *prima facie* obvious because Wagner et al. do not remedy the deficiencies described '*above of the combination of Gustafson in view of Chenchik*'.

This is not found persuasive for the following reasons:

[1] The examiner respectfully disagrees. It is the examiner's position that the reference of Wagner et al. is not use to remedy the deficiencies described '*above of the combination of Gustafson in view of Chenchik*' as fully discussed in paragraphs 8 and 10 above. The reference of Wagner et al. is use to remedy the deficiencies of claims 62 and 81 as discussed in the rejection (see paragraphs 2 and 5 above).

Therefore, the combine teachings of Gustafson et al., Chenchik et al., and Wagner et al. do render claims 62 and 81 *prima facie* obvious, and the rejection is maintained.

14. Claims 67-72 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 1, 60-61, 63-66 and 99-101 above, and further in view of Barrett et al. (US Patent 5,482,867).

15. Claims 86-91 are rejected under 35 U.S.C. 103(a) as being unpatentable over Gustafson et al. (US Patent 5,478,527) and Chenchik et al. (US Patent 6,087,102) as applied to claims 73, 79-80, 82-85, 97, and 98 above, and further in view of Barrett et al. (US Patent 5,482,867).

DISCUSSION

16. Applicant arguments are directed toward claims 67-72 and 86-91.

[1] Appellant argues that the combine teachings of Gustafson et al., Chenchik et al., and Barrett et al. do not render claims 67-72 and 86-91 *prima facie* obvious because Barrett et al. do not remedy the deficiencies described '*above of the combination of Gustafson in view of Chenchik*'.

This is not found persuasive for the following reasons:

[1] The examiner respectfully disagrees. It is the examiner's position that that the reference of Barrett et al. is not use to remedy the deficiencies described '*above of the combination of Gustafson in view of Chenchik*' as fully discussed in paragraphs 8 and 10 above. The reference of Barrett et al. is use to remedy the deficiencies of claims 67-72 and 86-91 as discussed in the rejection (see paragraphs 3 and 6 above).

Therefore, the combine teachings of Gustafson et al., Chenchik et al., and Barrett et al. do render claims 62 and 81 *prima facie* obvious, and the rejection is maintained.

(11) Related Proceeding(s) Appendix

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

Examiner: My-Chau Tran

11/20/06

MY-CHAU T. TRAN
PATENT EXAMINER

Conferees:

Supervisory Patent Examiner: Peter Paras, Jr.

PETER PARAS, JR.
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

Supervisory Patent Examiner: Andrew Wang

ANDREW WANG
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 1600

November 19, 2006